

Final Technical Report, AFOSR-F49620-94-1-0164

Equipment for In-Situ Studies of Metal on III-IV Semiconductors

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This supplemental grant was used to purchase a badly needed workstation for modeling of quantitative electron diffraction patterns from surfaces. The equipment purchased was an Hewlett-Packard 715/75 workstation. For reasons which are not completely clear, this computer ended up costing \$58.78 less than the quote from Hewlett-Packard upon which the proposed budget was based.

In addition to providing additional computing power for calculating diffraction patterns from surfaces (see references [1-3]), it also opened up completely new areas. Perhaps the most exciting of these is computer intensive image filtering based around Wiener filters [4-5] which have allowed us to directly resolve atomic surface structures at a resolution of better than 0.25 nm [1,3,6]. We have also used these new filter methods of image restorations in a very large number of cases for work both directly supported by AFOSR and by other agencies. It is realistic to state that with these filters we have almost completely abandoned dark-room chemical printing for digital processing of images, at a substantial long-term reduction in costs.

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1995 JUL 13 1335

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REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

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1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED FINAL 15 Feb 94 To 14 Feb 95
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4. TITLE AND SUBTITLE EQUIPMENT FOR IN-SITU STUDIES OF METAL ON III-V SEMICONDUCTORS	5. FUNDING NUMBERS F49620-94-1-0164 61102F 2303/BS
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6. AUTHOR(S) Dr Laurence D. Marks	
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9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) AFOSR/NL 110 Duncan Ave Suite B115 Bolling AFB DC 20332-0001 Capt Hugh De Long	AGENCY REPORT NUMBER
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11. SUPPLEMENTARY NOTES	 <p>DTIC SELECTED JUL 31 1995</p>
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12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; Distribution unlimited.	12b. DISTRIBUTION CODE F
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13. ABSTRACT (Maximum 200 words)

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DTIC QUALITY INSPECTED 5

14. SUBJECT TERMS	15. NUMBER OF PAGES
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT (U)	18. SECURITY CLASSIFICATION OF THIS PAGE (U)	19. SECURITY CLASSIFICATION OF ABSTRACT (U)	20. LIMITATION OF ABSTRACT (U)
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